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Notes on the Food of the Congo Eel, *Amphiuma*

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The Congo eel, *Amphiuma means means* (Garden) is a common and widespread salamander of southeastern United States. This species occurs in drainage ditches, vegetation-choked bayous and boggy areas, in crayfish burrows and beneath debris at the water's edge. Largest of our North American salamanders, this species may approximate three feet in length.

The food of *Amphiuma* has not been thoroughly investigated. Reports on its dietary are fragmentary; published information on the food has been casually added to other life history data. Hargitt (1892) records earthworms and clams as the food of *Amphiuma*, while Brimley (1920) states that the food consists principally of crayfish. Parker (1937) also notes that large quantities of crayfish are consumed, principally by *Amphiuma means tridactylum* in Reelfoot Lake, Tennessee. He adds mussels to this dietary. Louise C. Baker (1937) emphasizes the role of crayfish as food of *tridactylum*. Carr (1940) states that any animal that can be captured and swallowed is eaten by the adults of Florida *Amphiuma*, although soft crayfish, salamanders, and small frogs seem to be taken more frequently. This author adds that the young of the Congo eel feed on the amphipod *Palaemonetes*, aquatic insects and their larvae. C. L. Baker (1945) in an extensive report on the morphology and natural history of *Amphiuma means tridactylum*, says of captives, "The young of *Amia calva*, about three inches long, are eaten readily in captivity, whereas the spiny-finned sunfishes of similar size are ignored." Darnell (1948) has indicated the species to have a negative phototropism. This may be a factor limiting certain food items in the diet of the species.

My family and I have made herpetological collections over a number of years in the vicinity of Fort Myers, Florida. Among them are forty specimens of *Amphiuma*, collected principally in April and May. My friend Lt. Joseph A. Pollack, has sent me eight which he collected in the summer of 1948 on the Charleston Ordnance Depot, North Charleston, South Carolina.

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The present account summarizes the food of 36 specimens, varying in length from 277 mm. to 676 mm. The largest individual weighed 381 grams.

Siren lacertina occupies a habitat comparable to that of the Congo eel. *Siren* and *Amphiuma* of similar size, when small, eat similar food. Large individuals of *Siren* feed principally upon snails and insects; possibly the horny jaws of *Siren* are incapable of overcoming the more formidable prey which *Amphiuma* captures.

Table 1. Food of 36 *Amphiuma means* from Fort Myers, Florida and North Charleston, South Carolina. Specimens were collected in the spring and summer months.

Food	Frequency in per cent	Bulk in per cent
Insects	52.8	33.8
Amphibians	19.4	19.7
Reptiles	16.7	12.4
Fish	19.4	17.6
Crustacea	25.0	12.8
Mollusca	11.1	2.4
Arachnida	2.8	1.3

The relatively few groups eaten by *Amphiuma* reflect the scarcity of different items of aquatic prey. Presumably the Congo eel eats that which it can master. Any prey of suitable size is engulfed.

Insects: This group constitutes the dominant food in both frequency and bulk eaten. Beetles, both terrestrial and aquatic (principally dytiscid adults and larvae), Odonata (gomphine nymphs), chironomid larvae and pupae, and a few orthoptera constitute the bulk of the insects found in the stomachs.

Amphibians: The species recovered from the stomachs include *Acris gryllus* (3), *Rana* sp. (one certainly *sphenocephala*) (3), *Amphiuma* (2) and undetermined tadpoles. A 676 mm. *Amphiuma* had swallowed a 372 mm. individual. Another cannibalistic individual had devoured a smaller *Amphiuma* that appeared to approximate at least half the bulk of the predator.

Reptiles: Snakes, principally *Natrix*, appear to be an important food item. Two stomachs contained the tail of a water snake. Possibly some of the stub-tailed *Natrix* we commonly find in the range of *Amphiuma* may have parted with their tail through the strong jaws of the Congo eel. An *Anolis*, a small mud turtle (*Kinosternon*), and undetermined snake remains (ventrals

and keeled scales, presumed to be *Natrix*), comprise the remainder of the reptilian remains.

Fish: The swarming schools of poeciliids provide a ready meal for this big salamander. *Gambusia*, two or three in number, occurred in three stomachs. Centrarchids, including undetermined sunfish and black bass (*Huro*) and a single unidentified ameiurid had been eaten by the specimens examined.

Crustacea: Crayfish, *Cambarus* sp., constitute the principal crustacean eaten. Abundant in all the areas in which we collected *Amphiuma*, it was surprising that more were not taken. General accounts of *Amphiuma* dietary list this item as the principal food. Asellids were recovered from one stomach.

Mollusca: A few snails, *Heliosoma* and *Lymnaea*, had been eaten by four individuals. Presumably snails are not so important in the dietary of *Amphiuma* as they are for *Siren*. A large *Siren lacertina* often contains a half pint of snails, with the resultant debris of mud and vegetation fortuitously ingested when it eats these creatures.

Arachnida: Several lycosid spiders were taken from the stomach of a small individual.

LITERATURE CITED

- Baker, C. L.
 1945 The natural history and morphology of Amphiumae. Report Reelfoot Lake Biol. Sta., vol. 9, p. 55-91, fig. 1-13.
- Baker, Louise C.
 1937 Mating habits and life history of *Amphiuma tridactylum* Cuvier and effect of pituitary injections. Journ. Tenn. Acad. Sci., vol. 12, no. 2, p. 206-218. Brimley, C. S.
- 1920 Notes on *Amphiuma* and *Necturus*. Copeia, no. 77, p. 5-7.
- Carr, Archie Fairly, Jr.
 1940 A contribution to the herpetology of Florida. Univ. Fla. Publ., Biol. Sci. Ser., vol. 3, no. 1, p. 1-118.
- Darnell, Rezneat M., Jr.
 1948 Environmental factors which determine the habitat of *Amphiuma*. Report Reelfoot Lake Biol. Sta., vol. 12, p. 3-11, fig. 1-2.
- Hargitt, C. W.
 1892 On some habits of *Amphiuma* means. Science, old ser., vol. 20, p. 159-160.
- Parker, Malcolm V.
 1937 Some amphibians and reptiles from Reelfoot Lake. Journ. Tenn. Acad. Sci., vol. 12, no. 1, p. 60-86, fig. 1-18.

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